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(71) Applicant:
KABUSHIKI KAISHA TOSHIBA
Kawasaki-shi, Kanagawa-ken 210-8572 (JP)

(72) Inventors:
- **Terashima, Yoshiaki**
  Yokosuka-shi, Kanagawa-ken (JP)
- **Fuke, Hiroyuki**
  Kawasaki-shi, Kanagawa-ken (JP)
- **Kayano, Hiroyuki**
  Yokohama-shi, Kanagawa-ken (JP)
- **Yoshino, Hisashi**
  Machida-shi, Tokyo-to (JP)

(74) Representative:
Granleese, Rhian Jane et al
Marks & Clerk,
57-60 Lincoln's Inn Fields
London WC2A 3LS (GB)

(54) Planar filter and filter system

(57) There is disclosed a planar filter which can variably control a pass frequency band with a high precision and which is superior in skirt property and little in ripple.

A planar filter member (1) and tuning member (2) are disposed opposite to each other via a predetermined gap. The filter member (1) is structured in such a manner that an input/output portion (5) formed of a superconductor and a plurality of resonance elements (6) are formed on a substrate (4). The tuning member (2) is structured in such a manner that on the surface of a magnetic plate (7) with a permeability changing by an applied magnetic field, a plurality of dielectric thin films (8), and a plurality of electrodes (9) for applying electric fields to the dielectric thin films (8) are arranged. Each of the dielectric thin films (8) is disposed in a position opposite to a gap between the resonance elements (6) of the filter member (1), or a gap between the filter member (1) and the input/output portion (5). By applying a voltage between the electrodes (9), an effective permittivity ε of the gap between the resonance elements (6), or the gap between the resonance element (6) and the input/output portion (5) is variably controlled, and the skirt property and ripple are adjusted. Moreover, a resonance frequency of the resonance elements (6), a coupling between the resonance elements (6), and a coupling between the resonance element (6) and the input/output portion (5) may be individually and independently controlled.

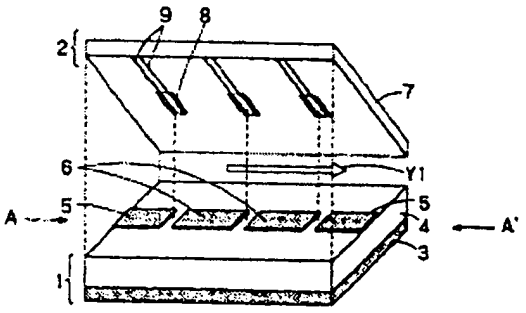

FIG. 1

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